DEPARTMENT OF AGRICULTURE, BENGAL.

ANNUAL REPORT

OF THE

BURIRHAT AGRICULTURAL STATION

FOR THE YEAR

1912-13.

CALCUTTA:
THE BENGAL SECRETARIAT BOOK DEPÔT.
1913.

[*Price—Indian, 1 anna; English, 1d.*]

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ANNUAL REPORT OF THE BURIRHAT AGRICULTURAL STATION FOR THE YEAR 1912-13.

Introduction.

This station has been reserved purely and simply for tobacco questions, and, in the few years that it has been in existence, excellent work has been done. In fact, to say the least, the results have been phenomenal. The ordinary tobacco cultivator in this district grows a crop of 10 to 15 maunds of tobacco leaf per acre, which he sells at about Rs. 15 per maund. Best quality, Barapat to Burmans, sells at Rs. 20 per maund; poor quality, Bispat, at Rs. 8 to Rs. 10 per maund. We have grown 15 to 20 maunds of tobacco leaf per acre, and have obtained the following prices:—In 1910, Rs. 40 per maund; in 1911, Rs. 90 per maund; in 1912, Rs. 65-4 per maund.

The ordinary cultivator sells his produce locally either for the Burmese trade, cigarette manufacture, or *hukah* tobacco manufacture, for which there is a great demand. We have obtained these better prices for a cigar leaf wrapper, and we have to search for the market in Madras and Trichinopoly. Messrs. Oakes & Co., and McDowell & Co., Cigar Manufacturers of Madras, inform us that they can only deal with us if we can guarantee a large enough quantity of uniform quality. The quality we can guarantee, but the quantity has so far been very limited, and we have had accordingly to deal with small manufacturers in Trichinopoly. Doubtless for large quantities of tobacco the average price would be much lower than the prices we have obtained, but there is plenty of margin for a big drop in prices and still show a profit, provided good outturns can be obtained.

The ordinary cultivator takes little care in harvesting and drying his leaf. He uses any hut, eaves of a hut, or house, line or fence and crushes all the leaves together. We take very great care to handle each leaf gently, shake off the sand, hang up each leaf separately in a shed, and turn repeatedly. The ordinary cultivator does not ferment his tobacco

leaf, but leaves that to the buyer. We ferment our own tobacco, which requires a shed and several months' time. We are therefore kept out of our money six months while the cultivator has not to wait.

Trichinopoly is a long way from Rangpur, and probably the freight is as great as from Sumatra to Trichinopoly. Taking everything into consideration, then, it is questionable whether growing cigar leaf wrapper in Rangpur is of any practical utility to the cultivator till there is more local enterprise. There are no cigar factories in Bengal, and probably the best course we could follow in future would be to restrict our work to the classes of tobacco that are sold locally in such enormous quantities. I think, however, before closing these remarks, that Babu Jamini Kumar Biswas, Superintendent of the Burirhat Agricultural Station, can fairly claim the right to have proved that a good class cigar tobacco can be grown and cured in Rangpur.

We have grown and flue cured American tobacco at this farm for cigarette manufacture, and have obtained the following prices:—In 1911, 25 maunds at Rs. 30 per maund; in 1912, 11 maunds at Rs. 26-4 per maund. There is a big demand in this district for cigarette tobacco, but the buyers only wish to buy poor grades at cheap rates.

We have also grown at this farm Turkish tobacco, and have shade-cured and flue-cured the same, obtaining the following prices:—In 1911, 47 seers at Rs. 65 per maund; in 1912, 11 seers at Rs. 70 per maund.

There is very little further information to place in this report than what was written in the annual report for last year. We have now sold the 1911-12 Sumatra crop, and, as I anticipated, the prices realized were not so good as were expected from the quotations offered. The 1912-13 tobacco crop is now in process of fermentation, and should be ready for the market in September-October. A much larger crop has been grown this year, and, when the present crop of 110 maunds of tobacco leaf has been sold, the prices obtained will make interesting reading.

The further observations that have been made on the soil of the different blocks of this farm only corroborate the opinions of the

previous year, viz., that except for about 3 acres, blocks A, C, and D are barren, which only leaves us with Blocks B and E, or a total area of about 15 acres from the farm area of 52 acres that will, ordinarily speaking, grow crops.

Situation and Brief History.

2. The farm is situated in 89° 2′ east longitude and 25° 75′ north latitude at Burirhat, 5 miles north of Rangpur town on the borders of a large tobacco-growing belt in the Rangpur district, the area under this crop in this district alone being 180,000 acres. The land was acquired in 1907, an establishment was maintained at the farm from July 1908, and *pucca* buildings were supplied in 1910-11.

Area.

3. The station is 52 acres in extent, and is divided into five blocks known as blocks A, B, C, D, and E, respectively. Of this area 38 acres are cultivable, while 14 acres are occupied by roads, buildings, bamboos, grazing and tank. Of these 38 acres 23 are barren.

Irrigation.

4. Theoretically, irrigation is not necessary in this district, owing to the large rainfall and long monsoon, but practically, owing to the sandy nature of the soil and the almost pure sandy sub-soil, good crops of tobacco on poor lands are only obtained by irrigating from shallow wells. As the soil of this farm is very poor, irrigation becomes a very important factor.

Character of the Soil.

5. The soil is a sandy loam with a sub-soil of almost pure sand which occurs at a depth of from 1 to 2 feet from the surface. This kind of soil may be peculiarly suited to tobacco but it will always be very hungry and in need of manure.

Several of the blocks are almost barren, the soil being too poor to support even a poor crop. Blocks A, C and D are extremely poor and barren in parts.

The following are analyses of soils and sub-soils from blocks A, D and E by Mr. Annett:—

Report on the composition of six samples of soil from the Burirhat Farm, Rangpur.

	Block A.		Block D.		Block E.	
	Top 6″.	Next 6″.	Top 6″.	Next 6″.	Top 6″.	Next 6″.
*Organic matter and combined water.	3·21	2·35	3·84	3·44	5·44	4·06
Insoluble silicates and sand.	84·07	85·60	81·85	81 98	80·45	80·86
Iron oxide	4·05	2·36	4·62	4·17	4·48	5·04
Alumina	5·84	6 02	6·74	7·54	7·78	7·56
Lime	0·14	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*
Total phosphoric acid ...	0·07	0·07	0·11	0·11	0·12	0·11
Potash	0·89	0·7	0·94	0 83	0·86	1·03
Manganese oxide ...	*Trace*	0·03	*Trace*	0·03	0·03	*Nil*
Carbonic acid ...	0·02	0·03	0·01	Nil	0·01	*Nil*
*Containing nitrogen ...	0·11	0 06	0·11	0·07	0·05	0·05
Available phosphoric acid	0·049	0·053	0·041	0·039	0·040	0·036
Available potash ...	0·012	0·006	0·012	0·019	0·019	0·018

* These soils are remarkable for the almost complete absence of lime. They apparently will never be any good for cultivation until lime is applied preferably in several small dressings. After liming they should prove very fertile.

The following are partial analyses of soils and sub-soils of the barren and fertile part of block A by Mr. Meggitt:—

	Barren area.		Fertile area.	
	Sample 1, first 6".	Sample 1*a*. second 6".	Sample 2, first 6".	Sample 2*a*, second 6".
	Per cent.	Per cent.	Per cent.	Per cent.
Soluble in hydrochloric acid with 12 hours' digestion—				
Phosphoric acid (P_2O^5)...	0·061	0·083	0·143	0·112
Potash (K_2O) ...	0·534	0·616	0·660	0·684
Lime (CaO) ...	0·360	0·515	0·339	0·353
Magnesia (MgO) ...	1·191	1 112	1·500	1·696
Soluble in 1 per cent citric acid with 7 days' digestion—				
Phosphoric acid ...	0·061	0·083	0·107	0·110
Potash	0·021	0·015	0·022	0·018
Lime	0·085	0·107	0·115	0·099
Magnesia	0·095	0·081	0·094	0·093
*Loss on ignition (= organic matter and combined water).	2·864	1·83	3·190	2·767
*Containing Nitrogen ...	0·090	0·049	0·087	0·072
Calcium carbonate ...	0·035	0·032	0·067	0·055

* *Reaction of soil.*—All very slightly acid.

"These soils present some interesting peculiarities."

"Broadly speaking, there are no very marked differences between them. Certainly the differences are not so great as to make it easy to understand why one soil should be much more fertile than the other."

"In the analysis of a soil without doubt the most important figure is the proportion of calcium carbonate, a substance which increases very far-reaching effects on the biological processes of a soil, and thus indirectly on the whole welfare of the same. Lime also exercises most pronounced effects on the texture of soils, and is active in bringing into play the reserves of plant food material lying dormant.

"If we look at these figures we shall see that the amount of calcium carbonate in the fertile soils is, though lamentably small, roughly twice that in the barren soils. In the case of such small quantities, doubling the amount of calcium carbonate (though still leaving the amount very small) might conceivably have a very large effect.

"It will also be seen that the total lime and also that soluble in 1 per cent citric acid are also very small.

"The ratio of 'total' magnesia to 'total' lime is in all the soils far too high, being generally in the proportion of 3 or 4 to 1. Though this is not shown in the 'available' condition, still the fact that the soil contains a larger reserve of magnesia will, in the ordinary course of soil processes, constantly tend to a too high ratio for magnesia to lime.

"As regards the other constituents, I should describe the total phosphoric acid in samples 1 and 1*a* as inadequate and that in samples 2 and 2*a* as adequate. The total potash is ample in all samples.

"Total lime as previously remarked is low and bears too low a ratio to the total magnesia present.

"With regard to the available constituents, there is certainly no lack of P_2O_5 or K_2O. Indeed in samples 1 and 1*a* the available P_2O_5 is actually equal to that obtained by solution in hydrochloric acid, and in the cases of 2 and 2*a* the 'available' P_2O_5 is very little less than the 'total.' Thinking that I might not have extracted the soil sufficiently long with hydrochloric acid, I repeated the experiment, extracting for periods twice and four times as long as the first extraction. These further experiments gave me figures almost identical with those given. It seems an extraordinary thing that the ratio between total and available P_2O_5 in these soils should be so low: it

is almost 1 : 1 in all cases, and it, of course, suggests that there are practically no reserves in these soils

"It is specially extraordinary as there is quite a fair percentage of iron in the soil. It suggests, of course, that the phosphoric acid is almost entirely present as some easily soluble compound—probably a lime compound. Certainly in the case of samples 1 and 1*a*, where the total and available P_2O_5 are identical figures, the amount of available lime is rather more than sufficient to account for the available P_2O in the form of tricalcic phosphate. In sample 1*a* I actually found some small particles of bone.

"These soils, though not rich in nitrogen, cannot be said to be very deficient. Judging from the loss on ignition and the percentage of nitrogen, the amount of organic matter, though not high, compares favourably with most Indian soils. Still both might be increased with advantage

"With the object of studying the effect of lime on these soils, two plots, each 1 bigha in area, were set out on the worst portions of block A and block D two years ago, and slaked lime was applied at the rate of 10 maunds (820 lbs.) per acre. It is intended to repeat the dose annually for five years. The plots are green manured in the rains and a *rabi* crop (*e.g.*, tobacco, mustard or oats) is taken in the cold weather.

"Lime was applied to both the plots in blocks A and D for the second year at the rate of 10 maunds (820 lbs.) per acre.

"A crop of mustard was grown in block A in the *rabi* season, but it has failed so far.

"In block B the effect of the lime so far is very small."

Mr. Meggitt says, practically speaking, the soils are rich in available phosphoric acid and potash, poor in lime, and, although not rich in organic matter and nitrogen, they cannot be said to be deficient in these ingredients. There is a fair percentage of iron in the soil.

From the agriculturists' point of view the soils are extremely hungry and poor in organic matter with no retentive power

whatsoever, and they will require very heavy applications of organic manures every year to ensure successful crops.

The following observations on blocks A, B, C, D and E on 10th July 1913 fully bear this out.

There are five blocks of land at this farm, viz., A, B, C, D and E—

Blocks.	Area in acres.	Conditions of crops, January 25th 1913.
A ...	5	Barren on 3 acres.
B ...	3½	Good.
C ...	8	Barren on 6 acres and good on remainder.
D ...	10	Poor to barren on 8 acres.
E ...	12	Poor, 6 acres. Good, 6 acres.
	38	

Treatment.—Block A has been treated as follows:—

1912-13.

			Mds.
Kharif ..	Cowpeas (green manured). 5 acres and manured.	Lime	30 per acre.
		Oilcake	10
Rabi ...	Mustard, 4 acres	A failure.	

		Mds.
Tobacco, 1 acre (manured). Condition of crop good.	Cowdung ...	75
	Oilcake ...	5

1911-12.

Kharif ... Cowpeas, green manured.
Rabi ... Mustard, which failed, except north-east corner.

1910-11.

Kharif ... *Dhaincha*, green manured.
Rabi ... Oats, failed, except in north-east corner.

1909-10.

Kharif ... Cowpeas, green manured.
Rabi ... Mustard, failure, except in north-east corner.

On 10th July 1913, with the exception of the north-east corner where 1 acre of tobacco had been manured with 75 maunds cowdung and 5 maunds of mustard cake in 1912, the *dhaincha* crop is doing fairly well, but on the larger area it is very poor and patchy, and in the southern half the crop has failed altogether.

In this southern half there are three check plots which have all been green manured with cowpeas, only one of which has been limed at the rate of 10 maunds per acre for the past 3 years. The *dhaincha* has failed entirely on all three plots. Even where oilcake 10 maunds *plus* lime 30 maunds per acre were applied to the cowpeas, the *dhaincha* crop is very poor, and on the better north-east corner it required lime 30 maunds per acre, oilcake 10 maunds per acre, *plus* cowpeas (green manured) in addition to 75 maunds cowdung *plus* 5 maunds mustard cake to produce a fair crop of tobacco which was not equal to the tobacco crop of block B, which received only cowpeas (green manured) in addition to 100 maunds cowdung per acre.

Block B, which is growing a very good crop of *aus* rice (July 1913), has been treated as follows:—

1912-13.

Kharif ... Cowpeas (green manured). No lime.
Rabi ... Tobacco, 100 maunds cowdung per acre.

1911-12.

Kharif ... *Dhaincha* (green manured).
Oats.

1910-11.

Kharif ... Cowpeas (green manured).
Rabi ... Tobacco, 150 maunds cowdung.

1909-10.

Kharif ... Juar.
Rabi ... Fallow.

Block C, which is growing (July 1913) a poor crop of *dhaincha* on the north two-thirds and a poor crop on the south one-third, has been treated as follows:—

1912-13.

Kharif ... Cowpeas (green manured). No lime.
Rabi ... Oats and peas.

1911-12.

Kharif ... Cowpeas (green manured).
Rabi .. Tobacco, 150 maunds cowdung per acre.
Oats and peas.

1910-11.

Kharif ... *Aus* paddy.
Rabi ... *Mati kalai*.

1909-10.

Kharif ... Cowpeas (green manured).
Rabi ... Tobacco, 75 maunds cowdung.

Block D, which has (July 1913) a poor crop of *dhaincha* growing on 8 acres and a good crop of *dhaincha* and cowpeas on 2 acres, has been treated as follows:—

1912-13.

Kharfi ... *Aus* paddy.

Mds.

Rabi ... Tobacco, 10 mustard cake
or
75 cowdung
or 5 mustard cake
} per acre.

One plot, 1 bigha in extent, has been limed at the rate of 10 maunds per acre for the past 3 years. At present the effect of the lime is very small:—

1911-12.

Kharif ... Cowpeas (green manured).
Rabi ... Oats.

1910-11.

Kharif ... Cowpeas (green manured).
Rabi ... Tobacco, 75 maunds cowdung per acre. Top-dressed 5 ,, oilcake. Irrigation also necessary.

1909-10.

Kharif ... *Aus* paddy.
Rabi ... *Mati kalai.*

On half the area Block E had in July 1913 a good crop of *dhaincha* growing. The following treatment has been given to this block :—

1912-13.

Kharif ... Cowpeas or *dhaincha* (green manure).

Rabi ... Tobacco,

	Mds.		
	100	cowdung or	per acre.
	75	,,	
Top-dressing 2 maunds saltpetre.	5	mustard cake	
	50	cowdung	
	5	mustard cake	

1911-12.

Kharif ... *Juar* or *aus.*
Rabi ... *Nil* or *mati kalai* (no gram formed).

1910-11.

Kharif ... Cowpeas (green manure).
Rabi ... Mustard.

1909-10.

Kharif ... *Dhaincha* (green manured).
Rabi ... Oats.

Accordingly, out of all these 38 acres, there are only about 15 acres of land that are not barren, the remainder being too poor to grow crops economically.

6. *Meteorology.*—The rainfall of this district is very heavy and is well distributed over the period April to October. The

following table gives the rainfall and number of rainy days during 1912-13 as compared with the normal:—

	Actual Rainfall.		Normal Rainfall for district.	
	Rainfall.	Number of rainy days.	Rainfall.	Number of rainy days.
1912.				
April	9·36	8	3·01	4·3
May	6·17	9	10·66	11·5
June	12·69	20	18·00	15·7
July	35·32	19	15·89	15·0
August ...	27·80	20	12·80	13·7
September ...	6·13	10	14·24	13·3
October ...	6·79	5	4·87	4·4
November .	3·30	4	0·12	0·2
December ...	Nil	Nil	0·05	0·2
1913.				
January ...	Nil	Nil	0·50	0·9
February ...	1·22	3	0·54	1·2
March ...	1·26	3	1·25	1·8
	110·04	101	81·93	82·2

From the figures it is seen there is no lack of moisture from April to October, but the tobacco crop is only planted in October November and the soil is so porous that, although the land is flooded sometimes in September, by October the soil is quite powdery, by November the soil is very dry, and by December it

is necessary to irrigate the poor soils, if heavy crops of tobacco are wanted.

The soil of this farm is too poor for jute and sugarcane; otherwise the elevation and texture of the soil are ideal for such crops.

In 1912-13 the heavy rainfall of July-August allowed *dhaincha* and cowpeas to be easily green-manured.

7. *Operations during the year.*—The following table gives the area under tobacco in each block with the kind and name of tobacco in each case:—

Block A	...	1 acre Little Flemingen for cigarette tobacco.
„ B	...	2 acres Sumatra for cigar wrapper (1 acre was poor). 1 acre White Burley for cigarette tobacco.
„ C	...	*Nil.*
„ D	...	1 acre Turkish 2 American } for cigarette tobacco.
„ E	...	2 acres Sumatra for cigar leaf (crop was only fair). 2 acres White Burley 2 acres Little Flemingen (Little Flemingen was very poor). } for cigarette tobacco.

(*b*) *Experimental work.*—Tobacco cultivation and the curing of the leaf.—The scheme of experiments was practically the same as that followed in previous years, the object being—

(*a*) to produce a high grade cigar wrapper leaf;

(*b*) to produce tobacco suitable for the manufacture of good class cigarettes.

The variety grown for cigar wrapper was Sumatra, of which 4 acres were planted in blocks B and E.

For the production of cigarette tobacco, American varieties, viz., White Burley and Little Flemingen, were grown on 7 acres in blocks A, B, D and E.

Besides 1 acre of Turkish of the following varieties was sown for cigarette tobacco:—

(*a*) Some Sown.
(*b*) Cavella.
(*c*) Sari.
(*d*) Ayasalouk.

Each variety of tobacco was sown in seed-bed in the field in September and transplanted out in the fields in October-November. Sumatra is planted in wide rows, while Turkish is planted in narrow rows. The earlier the crop is planted the better chance it has of being successful. Very late transplanted crop will hardly succeed unless helped by artificial means in January, *i.e.*, manure and irrigation. About 20 leaves are left on each plant. On the earliest planted crop harvesting was commenced at Christmas, and lasted until the end of March in the case of the later planted crop. The basal leaves were primed in harvesting and the rest cut whole. In the case of Turkish the whole plant was cut.

Both shade-curing and flue-curing were practised, and at the present time we have approximately the following quantities of tobacco leaf of the following varieties in the fermenting shed, which will only be ready for the market in September-October :—

Sumatra	... 25	maunds	for cigar wrapper.
American	... 80	„	for cigarettes.
Turkish	... 5	„	for cigarettes.

When we work out the above per acre it only comes to Sumatra 6¼ maunds, American 10 maunds and Turkish to 5 maunds. By the end of fermentation these figures may be much reduced, so that results that work out splendidly with 20 maunds per acre are not so good when the poor land crop is also taken into consideration.

Prices of tobacco.

Our 1910 crop of Sumatra realized from 12 annas to 7 annas per pound according to quality. The total amount sold to Madras cigar manufacturers was 13 maunds and 15 seers, which realized the sum of Rs. 587-11, while the cost of production was only Rs. 193-15.

The 1910 flue-cured crop of cigarette tobacco was of fair quality, but it deteriorated through being stored too long on the farm, where at the time there was no suitable store-house, and it finally had to be disposed of at a nominal figure.

In 1911 prices were far ahead of anything previously realized for tobacco grown in this district.

The Sumatra grown on $1\frac{1}{10}$ acres in Block B was sorted into four grades according to size and quality of leaves. The three top grades were sold to a Madras firm of cigar manufacturers at the following prices:—

Grade.	Quality.	Price.	
	lbs.	Rs. A.	Rs.
A ...	862	at 1 4 per lb. =	1,077 8
B ...	286	„ 1 0 „ „ =	286 0
C ...	256	„ 0 12 „ „ =	192 0
Total ...	1,404		1,555 1

This works out at an average price of Re. 1-1-8 per lb. for 1,404 lbs. of tobacco. The price per maund (of 82 lbs.) is as follows for each grade:—

Grade.	Rs.	A.
A	102	8
B	82	0
C	61	8

The cost of cultivation and curing of the tobacco sold for Rs. 1,555-8 was Rs. 246-9-9 (exclusive of rent of land and value of cowdung.)

The 1911 crop of fire-cured cigarette tobacco was sold locally and realized the following prices:—

Variety.	Quantity	Price.
	Mds. Rs.	
White Burley ...	5 at 37 8	per maund.
Little Flemingen ...	7 „ 35 0	„
Connecticut seed leaf ...	13 „ 25 0	„

A small quantity of Turkish tobacco, which was sucessfully flue-cured, was sold to a Bombay firm of cigarette manufacturers at the following prices:—

1st quality	...	19 seers at Rs. 81 4 per maund.	
2nd „	...	28 „ „ 50 0	„

Sumatra.—The 1912 crop has brought the following prices. This was shade-cured and 12¼ maunds were sold in Trichinopoly:—

Grade.	lbs.	Rs. A.		Rs. A.	
A ...	200	at 1 0	per lb. or	82 0	per maund.
	458	„ 0 15	„ „ „	76 14	„
B ...	112	„ 0 11	„ „ „	56 4	„
C ...	50	„ 0 5	„ „ „	25 10	„
D ...	230	„ 0 8	„ „ „	41 0	„
	1,050				

For cigarette tobacco all the American varieties [except the lower Virginia leaves (*bispat*) which were shade-cured] were flue-cured and mixed together for sale.

Two maunds were sold at Rs. 32-8 per maund, while 9 maunds 5 seers were sold at Rs. 25 per maund.

Turkish.—This variety was shade-cured. Only $\frac{1}{25}$th of an acre of Turkish was grown for seed purposes. This yielded 11 seers of leaf, which was sold at the rate of Rs. 70 per maund. The cost of production of tobacco at this farm will not be any guide owing to the poverty of the soil.

(*c*) *Conservation of cattle-dung.*—The cowdung is stored in *cutcha* pits and protected from the sun, but there are no definite figures yet worth publishing as to the value of such procedure as compared with the methods practised by the ordinary raiyat.

(*d*) *Distribution of seed.*—The following seeds were distributed during the year:—

Tobacco seed 9 oz. and seedlings sufficient to plant 2 acres.

(*e*) *Practical training of young men.*—One apprentice received training during the year. Two others received two months'

training. Fifteen cultivators in the locality carried out our methods and obtained for 25 maunds of cigarette tobacco Rs. 20 per maund as against Rs. 14 for the local produce.

8. *Receipts and Expenditure.*—The following were the total receipts and expenditure during the year April-March 1912-13 :—

	Rs.	A.	P.
Receipts	900	13	4
Expenditure—			
Establishment	3,120	0	0
Capital (construction)	1,425	0	0
Labour and ordinary expenditure ...	3,675	6	6
Cattle-food	266	13	3
Miscellaneous	824	13	9
Petty repairs	556	1	9
Total ...	9,868	3	3

9. *Acknowledgments.*—We are indebted to Messrs. Annett and Meggitt for analyses and heartily record our thanks for the same.

10. *Management.*—Babu Jamini Kumar Biswas was the Superintendent in charge during the year. He took leave from 9th September to the end of October 1912, when Babu Satindra Lal Sen Gupta officiated. It cannot be said that Jamini Babu was overzealous in his work, as the above period was the most important time for the 1912-13 crop, while the 1911-12 crop was still lying in the godown. The Deputy Director supervised the work continuously throughout the year. The Director of Agriculture, Mr. Blackwood, visited the farm once during the period under review.

F. SMITH,

Deputy Director of Agriculture, Bengal.

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